

Translation of Scientific Texts from the Perspective of Ecological Translation Theory

Jinyao Cai Sen Yuan

Xi'an Shiyou University, Xi 'an City, Shaanxi Province, 710065,China

Abstract: As a part of applied translation, scientific and technological translation is an important way of international scientific and technological exchange and cooperation. Based on the current domestic and foreign research on the translation of scientific and technological texts, this paper starts from the three dimensions of ecological translation theory, that is, under the principle of “multi-dimensional adaptability and adaptive selection”, explores the possibility of language, culture and communicative dimensions in the translation practice of scientific and technological texts, and finally realizes the dynamic balance between source text and target text, translator and reader.

Keywords: scientific translation; Ecological translation theory; Dynamic balance

1. Introduction

With the rapid development of science and technology and the increasing frequency of international exchanges, translation of scientific and technological texts has been paid more and more attention as an important bridge of scientific and technological exchanges and cooperation. With the continuous evolution of translation theories, ecological translation theory, as a new theoretical paradigm, provides a new perspective and thinking for the translation of scientific and technological texts. From the perspective of ecological translation theory, this paper aims to explore the practice and methods of scientific and technological style translation, and how to achieve the dynamic balance between source text and target text, translator and reader, so as to provide new ideas and inspiration for the research and practice of scientific and technological style translation.

2. Standards for Translation of Scientific and Technological Texts

According to the stylistic features, linguistic functions and linguistic environment of scientific and technological articles, the translation criteria of scientific and technological topics can be divided into three categories: faithful and accurate, smooth and fluent, and standardized and professional. Among them, the “faithful and accurate” consistency between the original text and the target text, as well as the reader’s understanding and acceptance of the “fluency” and “standard” of the target text are very important.

2.1 Faithful and Accurate

The so-called faithful and accurate means that the understanding and expression of scientific and technological content, scientific and technological terms, linguistic forms, logical relations, symbols and formulas should be accurate, and no mistranslation or omission must be made, and the semantics must be faithfully conveyed.

2.2 Smooth and Fluent

Fluency means that in order not to affect the understanding of information due to different language forms, the words and text structure of the target text should be concise, prominent and easy to understand. Translation should be smooth under the premise of “faithfulness and accuracy”. If this standard is violated, translation problems will arise.

2.3 Standardized and Professional

Scientific writing is an official writing used for communication in the field of science and technology. The higher the level of official style, the more terms, definitions and concepts, the higher the degree of specialization and professionalism of the style, and the higher the standardization and specialization requirements for translation.

3. Ecological Translation Theory

Ecological translation is a new translation theory proposed by Hu Gengshen, a famous professor in Tsinghua University. He summarizes the translation method as “three-dimensional” transformation, that is, under the principle of “multi-dimensional adaptation and adaptation selection”, it relatively focuses on the adaptation and selection transformation at the levels of language, culture, peace and communication. In the process of translation, translators can only produce suitable translation articles by adapting to the specific translation ecological environment in multiple dimensions, at least in the three dimensions (linguistic, cultural and communicative dimensions).

4. Application of Ecological Translation Theory in Scientific and Technical Translation

Translators will be influenced and restricted by the translation environment when translating scientific and technological texts, so as to make reasonable and adaptive selection of translation methods. The translation of scientific and technological texts should pay attention to the adaptive selection and conversion of language dimension, cultural dimension and communicative dimension.

4.1 Language Dimension

The translation of language dimension requires the translator to fully consider the differences between English and Chinese in the translation process, so as to make a reasonable conversion.

4.1.1 Zero translation

Some sentence elements are essential in English, but superfluous in Chinese, so they should be left untranslated in order to make the translation precise and concise.

Example 1: Any substance is made of atom. Whether it is solid, liquid or gas. (source text)

任何物质都是由原子构成的。无论是固体、液体还是气体。(target text)

Example 2: The potential of this work applied to healthcare is very great, but it could also lead to further concentration of power in the tech giants.(source text)

这一技术应用于医疗保健领域的潜力非常大，但也可能导致科技巨头权力的进一步集中。(target text)

The second type of zero translation is manifested in transliteration, that is, using Chinese characters with similar sounds to translate foreign words.

Example 3: Some people believed that clone technology is an efficient way of protecting endangered species.(source text)

有些人认为克隆技术是保护濒危物种的有效办法。(target text)

Example 4: As hacker turned up, layers of security, from antivirus programs to firewalls, were added to try to keep them at bay.(source text)

随着黑客的出现，从防病毒程序到防火墙的层层安全措施被添加进来，试图阻止他们。(target text)

From the perspective of ecological translology, some English words can be zero-translated when they appear in other languages in their original form, which is in line with the accuracy and conciseness required by the language dimension of ecological translation theory.

4.1.2 Amplification

Readers are not familiar with technical terms and professional background knowledge. In this case, additional translation can help readers better understand the original content.

Example 5: The complex automatic control system monitors over the process by means of computers.(source text)

综合自动控制系统能利用计算机监控整个操作过程。(target text)

Analysis: Add “operation” before “process” to make its specific meaning clearer.

Example 6: Sensor switches are located near the end of each feed belt.(source text)

各传感器开关位于每条给料皮带末端附近。(target text)

Analysis: Adding the word “each” before the subject noun represents multiple switches to make the translation more accurate.

The above two examples use additional translation to help readers understand the original text and achieve a reasonable transformation

of language dimensions.

4.2 Cultural Dimension

Cultural dimension transformation means that the translator should not only retain the cultural content of the source language, but also adapt to the cultural characteristics of the target language, so as to avoid misunderstandings caused by cultural differences in the translation process. Generally speaking, for cultural equivalence, literal translation can be adopted. For cultural differences, set translation can be used.

4.2.1 Literal Translation

Since scientific sources rarely have the cultural differences of literary works, it is only necessary to translate these words directly.

Example 7: DNV shall have the right to transfer, assign or subcontract all or parts of its rights and duties under this Agreement to any of its sister companies or subsidiaries.(source text)

DNV 应有权把本协议的全部或者部分权力和责任转移、转让或者分包给其任何一间姊妹公司或附属公司。(target text)

Analysis: The literal translation of the “sister companies” in the source text, whether in English or Chinese, represents the close relationship, which is the mutual communication between Chinese and Western cultures.

Example 8: Blacklisting would make it hard for American firms to function there.(source text)

被列入黑名单使得美国企业很难在那里发挥作用。(target text)

Analysis: The reason why “blacklisting” is translated as a verb is that in both Chinese and English, black can be an emotive word, which is mostly used to express bad emotions.

4.2.2 Set translation

Set translation refers to the translation of foreign words, neither phonetic nor Italian translation, but to take a compromise approach, the use of the national language already exists in the vocabulary of the application.

Example 9: Try to watch a movie with a phone with notch.(source text)

尝试用一部刘海屏手机看一部电影。(target text)

Example 10: Entry-level Samsung Galaxy F04 coming soon with 8GB RAM, teaser reveals.(source text)

预告片透露，标配版三星 Galaxy F04 (8GB) 即将推出。(target text)

The translator focuses on the cultural equivalence and differences between the source language and the target language, and transforms the words with cultural meanings in the source language into those with corresponding meanings in Chinese, thus achieving a reasonable transfer of cultural connotations.

4.3 Communicative Dimension

Scientific and technological translation is actually a kind of cross-cultural communication. It is a necessary way for beginners to master English while learning foreign advanced science and technology. It can help them understand the latest science and technology, so its communicative intention is particularly important.

4.3.1 Omission

Sparing translation and augmentation translation are corresponding translation techniques, that is, deleting words that do not conform to the thinking habits, language habits and expressions of the target language, so as to avoid the burden of questions.

Example 11: 这样一个发电站的修建费用仅占开发工程总费用的一小部分。(source text)

The cost of such a power plant accounts for only a small portion of the total of the development.(target text)

Example 12: 中国人口的 80% 生活在农村，如果不解决他们的生活问题，那社会就无法安定。(source text)

Eighty percent of China’s population live in the rural areas, and there will be no social stability unless their daily needs are met.(target text)

From the communicative dimension of ecological transliteration, if the category words in the Chinese original sentence are translated directly, the English expression will be worded. Therefore, the provincial translation is adopted to make the translation more concise and re-

alize the reasonable transformation of the communicative dimension.

5. Conclusion

Under the guidance of ecological translation theory, scientific translation is not only a simple conversion of text into another language, but also an interactive process. The translator makes appropriate selection and adaptation in three dimensions, so that the target text can adapt to the ecological environment of scientific English and readers. It can be seen that ecological translation theory provides useful ideas and methods for the translation of scientific and technological texts, and promotes the cross-cultural dissemination and understanding of scientific and technological information.

References

- [1] Chen Yifei. Implications of ecological translation science for scientific and technological translation[J]. Journal of Heilongjiang Institute of Education,2019,38(11):142-144.
- [2] Saihanqiqiqi. Principles and translation methods of scientific and technological genre translation[J]. Journal of Chifeng College(Chinese Philosophy and Social Science Edition),2017,38(02):88-91.
- [3] Wang Lili. Research on Translation Strategies of Scientific and Technical Texts Based on Ecological Translation Theory[J]. Modern English,2022,(20):70-73.
- [4] Zhan Cong. Translation Strategies of Scientific and Technical Literature under the Perspective of Ecological Translation Studies[J]. Comparative Research on Cultural Innovation,2021,5(36):130-133.
- [5] Zhang Yimin. Horizontal and longitudinal theory and the word selection problem of scientific and technological terminology translation[J]. Journal of Kunming College,2017,39(05):123-127.

About the author:

Cai Jinyao (2000-), Female, Han, Xianyang City, Shannxi Province, Master Degree, Xi'an Shiyou University, Translation
Yuan Sen , male, Han, Xi'an Shiyou University, Professor, Translation